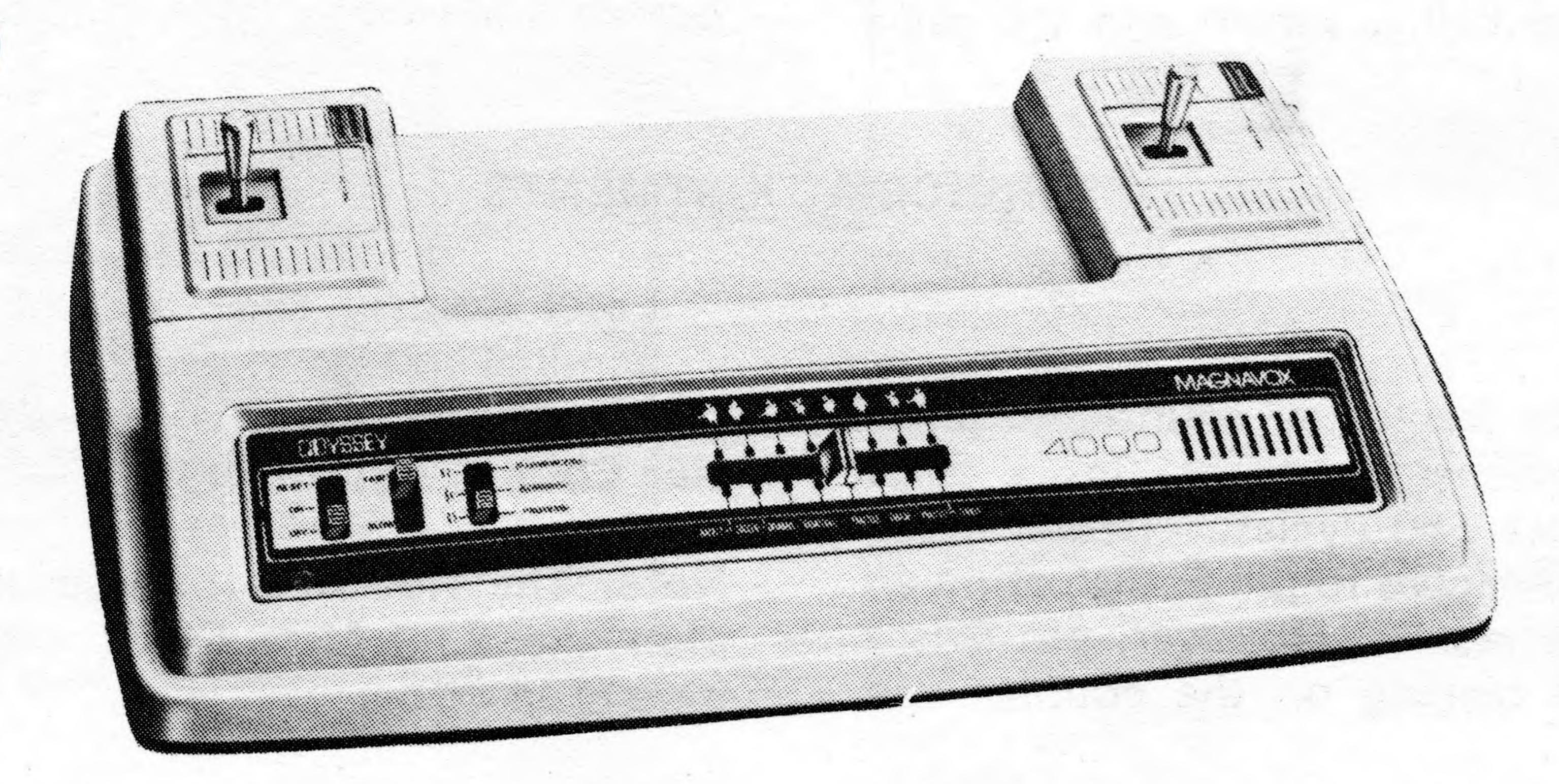
# NAGNAVOX SERVICE MANUAL

SERVICE DEPARTMENT/ MAGNAVOX CONSUMER ELECTRONICS COMPANY FORT WAYNE, INDIANA 46804

BH7511 ODYSSEY

Scanned by Sly DC (2018)



#### GENERAL INFORMATION

The BH7511 Odyssey is powered by an AC to DC, 9 volt, 100 ma adaptor. It's features include a selection of eight games that allows the operator to choose from Hockey, Soccer, Gridball, Basketball Practice, Basketball, Smash, Smash Practice, or Tennis. For an extra challenge, the BH7511 has a three position Skill Switch that enables the operator to change the player size by switching to the "Amateur", the "Professional", or the "Handicap" position. In the "Handicap" position, the right contestant will be handicapped with a player of smaller size than the left contestant.

Other features include automatic on-screen scoring (0 to 15), full color picture (when used with a color TV), and separate Hand Control units incorporating a joystick for random movement of the players on the screen. Each Hand Control Unit is not directly attached to the main unit, but is connected through a cable, which lets the operator hold his Hand Control and gives him more freedom of movement. The speed of the ball can be controlled by placing the Ball Speed Switch in either the "Fast" or the "Slow" position.

When the Ball Speed Switch is in the "Fast" position, the ball will speed up on the seventh hit by a player (or players) after each point. In the "Slow" position, the ball will stay slow at all times.

Manual No. 6508

Miscellaneous Section

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The BH7511 also incorporates sound and angle deflection of the ball. During play a separate audio tone is heard each time the ball hits a player, a barrier, or a point is scored. The angle at which the ball is deflected is determined by the point at which the ball hits a player. A ball passing through a player from the rear will also be deflected at an angle depending upon the point of entry through the player. When the ball hits a wall (barrier), the angle at which it deflects is determined by the angle at which it hits.

Any game may be stopped and started over at any time on the BH7511 by moving the Reset/On/Off Switch to the "Reset" position. The unit also incorporates manual serve which is triggered by depressing one or both of the Hand Control Action Buttons (depending on the game being played).

#### TYPICAL OPERATION (TENNIS)

Connect the 300 ohm twin lead from the Antenna/Game Switch Box to the 300 ohm VHF antenna terminals of a properly adjusted and operating television receiver. Connect the Game Cord Cable from the Odyssey unit to the Antenna/ Game Switch Box and place the Game/TV Switch in the Game position.

Set the Odyssey Channel Select Switch (located on the RF Modulator Box) to either Channel 3 or 4 and turn the television VHF Channel Selector to the same channel. Plug the AC Adaptor into the adaptor socket located on the back of the Odyssey main unit and apply power by moving the Reset/On/Off Switch to the "On" position (fine tune the television if necessary). Slide the eight position Game Switch to the "Tennis" position and a tennis court should

appear on the television screen. If viewed on a color set the background for Tennis should be a light green (specific colors may vary depending upon the setting of the color, tint, contrast, and brightness controls of the television receiver). Adjust the player size by setting the Skill Switch to the desired level (Professional, Handicap, or Amateur). The speed of the ball can be set by placing the Ball Speed Switch in the "Fast" or the "Slow" position. In the "Slow" position the ball moves at a moderate speed throughout the game. However, when the Ball Speed Switch is placed in the "Fast" position, the ball will speed up on the seventh hit by a player (or players) after each point is made.

When the Odyssey is first turned on, the score on the display may not show a 0-0 score. To begin the game

#### 6508-2

(or to start over at any time during a game) with a score of 0-0, slide the Reset/On/Off Switch to the "Reset" position. This position is spring-loaded so that the switch will return to the "On" position after the game display has been reset.

The score is now set to zero and the game is ready to begin. The contestant whose court the ball appears in serves. To serve, the contestant must push the Action button located in the upper left hand corner of his Hand Control. (Note: The buttons are colored red for the left player and blue for the right player). In "Tennis" a contestant gets five serves before passing service to his opponent. When the Action button is pushed, the ball is served and the game

begins. Located on each Hand Control is a joystick which allows the operator full control of his player's movement. The player will move on the screen in the same direction as the operator moves the joystick, providing the Hand Control is held with the colored Action button in the upper left hand corner. During play, a separate audio sound is heard each time the ball hits a player, a barrier, or a point is scored. After five serves by one player, service is passed to the opponent and the ball automatically appears on his side of the court (at court's edge). Each time the ball leaves the playing area, the Automatic Scoring will award a point to the appropriate player. After either player has scored 15 points, the ball cannot be served until the Reset/On/Off Switch is moved to "Reset" to begin a new game.

#### SERVICE ADJUSTMENTS

#### 3.58 MHz Clock Adjustment

1. Connect a high impedance frequency counter to pin 6 of IC2. Adjust C10 (trimmer capacitor) for a clock frequency of 3,579,545 Hz ±50 cycles. (Note: When a frequency counter is connected to pin 6, distortion on the television screen may result. However, pin 6 is a buffered output and the reading on the counter will be unaffected).

#### Channel 3 & 4 RF Oscillator Adjustment

- 1. Connect the Odyssey to an operating TV and defeat the television AFT.
- 2. Turn the TV Channel Selector to Channel 3 and set the Odyssey Channel Select Switch (located on the RF Modulator Assembly) to Channel 3 also.
- 3. While observing the game display, adjust L3 for optimum response.
- 4. Switch the TV and the Odyssey to Channel 4.
- 5. While observing the game display, adjust trimmer capacitor C5 for optimum response on the TV screen.
- 6. Repeat steps 2 through 5 until Channel 3 and 4 game displays are equal in quality.

#### Video Level Adjustment

1. Connect an oscilloscope to the wiper arm of the Video

Level Control (R5) and adjust the video signal for a nominal voltage of .8V P-P.

#### Hue Control Adjustment

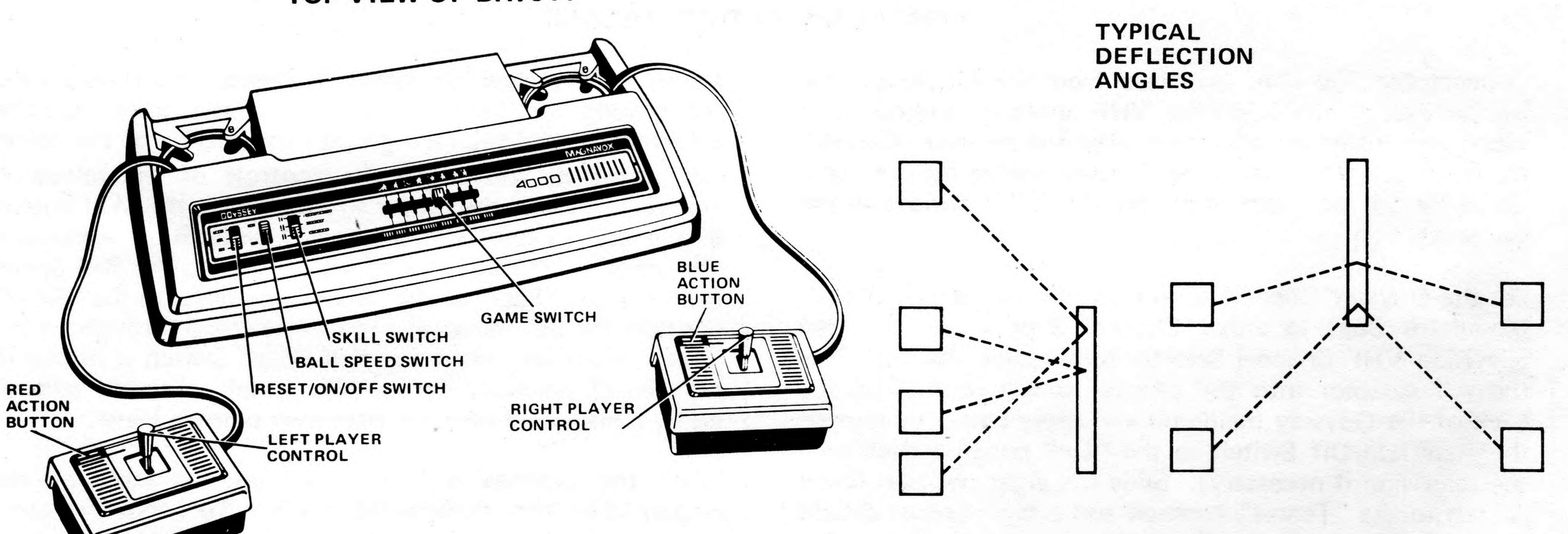
Note: The Hue Control adjustment should be made only after the 3.58 MHz Clock and Video Level adjustments have been made.

- 1. Before adjusting the Hue Control, tune the television to a local station and adjust the controls for a good color picture.
- 2. Connect the Odyssey to the television and slide the eight position Game Switch to the "Tennis" position.
- 3. Adjust the Hue Control (R4) to obtain a green back-ground color with yellow to orange field lines.
- 4. Cycle through the remaining seven games and check for the existence of color on each game. There should be four distinct background colors as follows:

Gan	10	Background
Α.	Tennis & Soccer	Green
В.	Hockey & Gridball	Blue
C.	Basketball Practice & Smash Practice	Cyan
D.	Basketball and Smash	Magenta

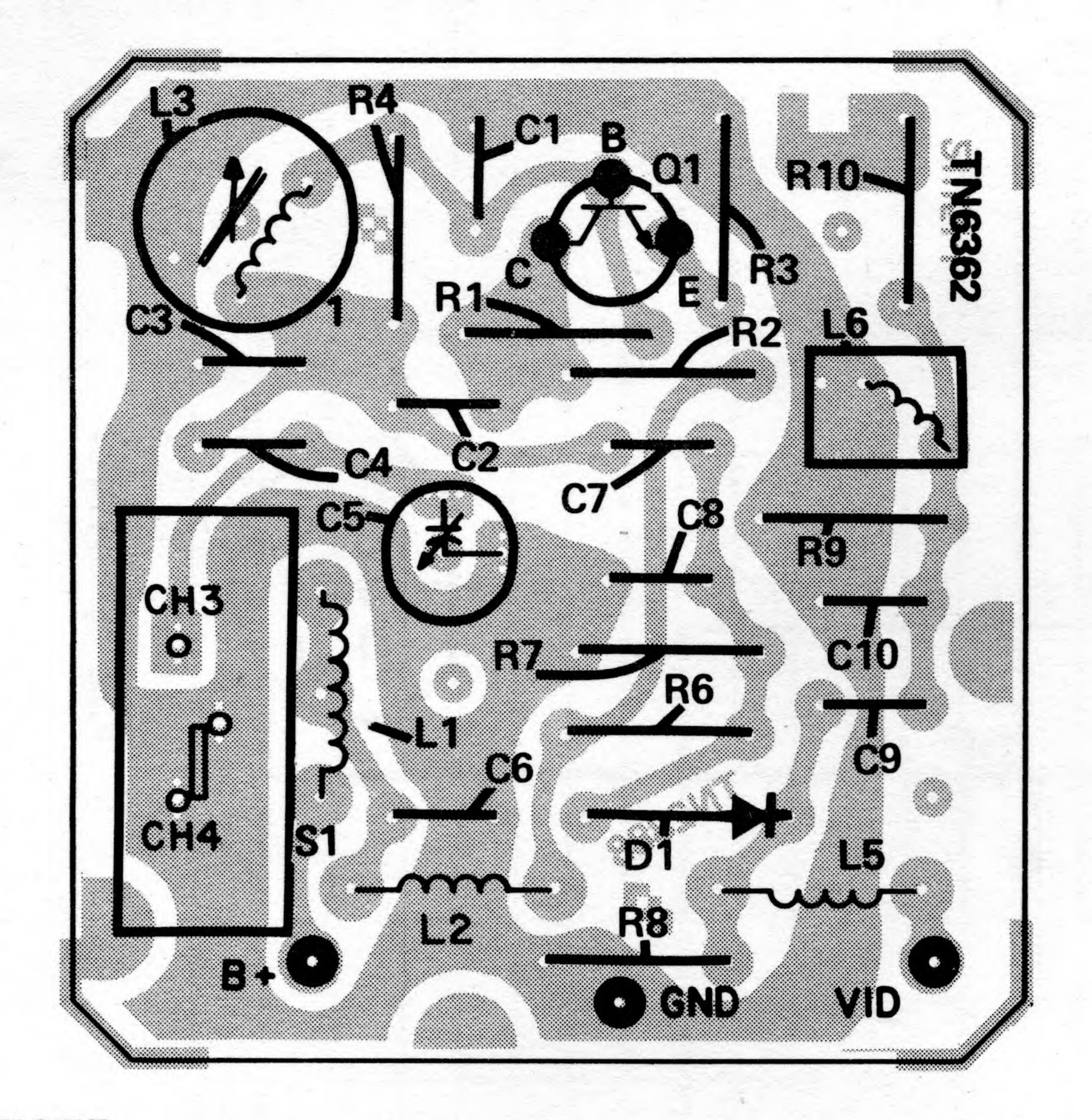
(Note: The colors may vary depending upon the control settings of the television receiver).

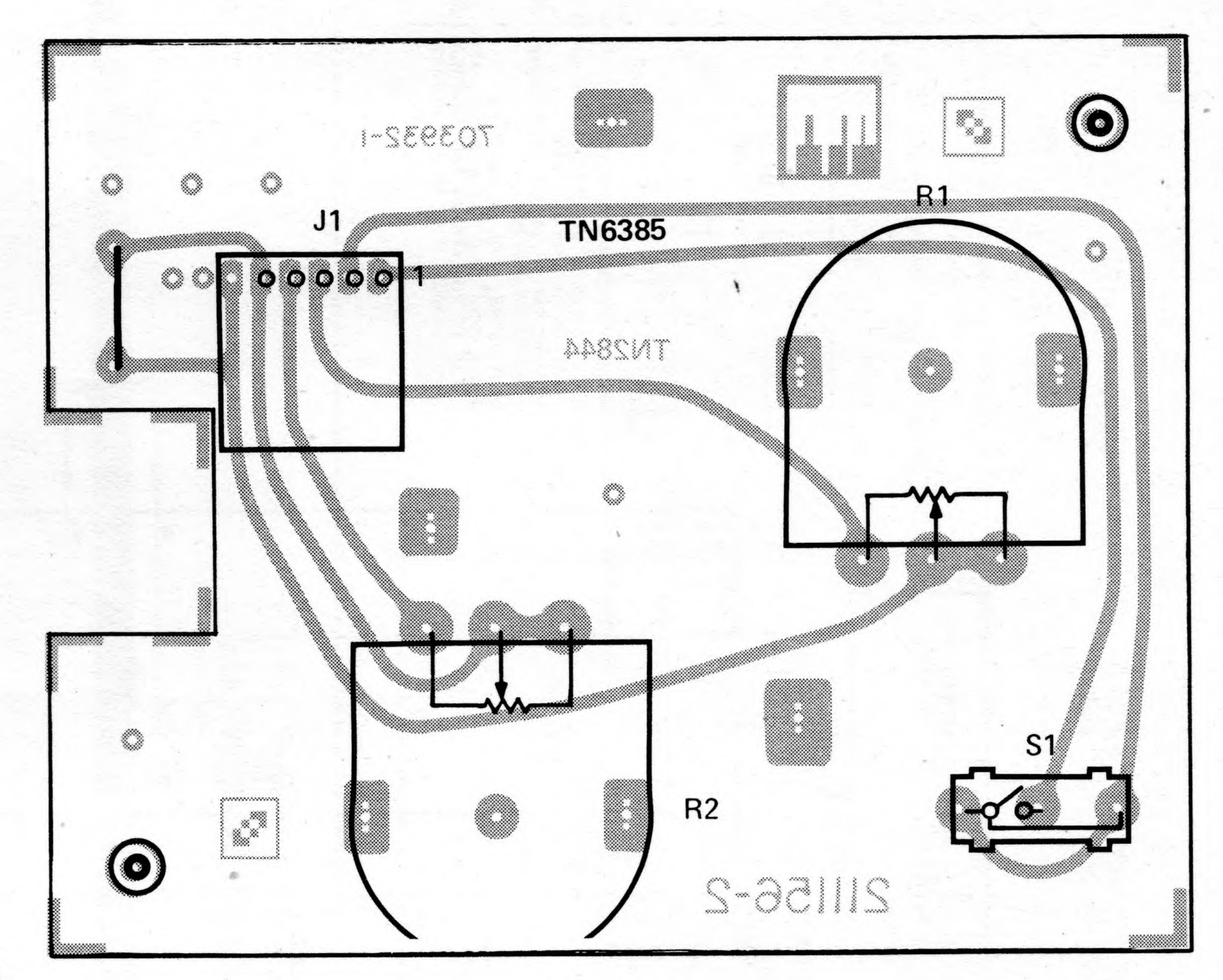
#### TOP VIEW OF BH7511



## RF MODULATOR P.C. BOARD (VIEWED FROM COMPONENT SIDE)

#### HAND CONTROL P.C. BOARD (VIEWED FROM COMPONENT SIDE)





NOTE:

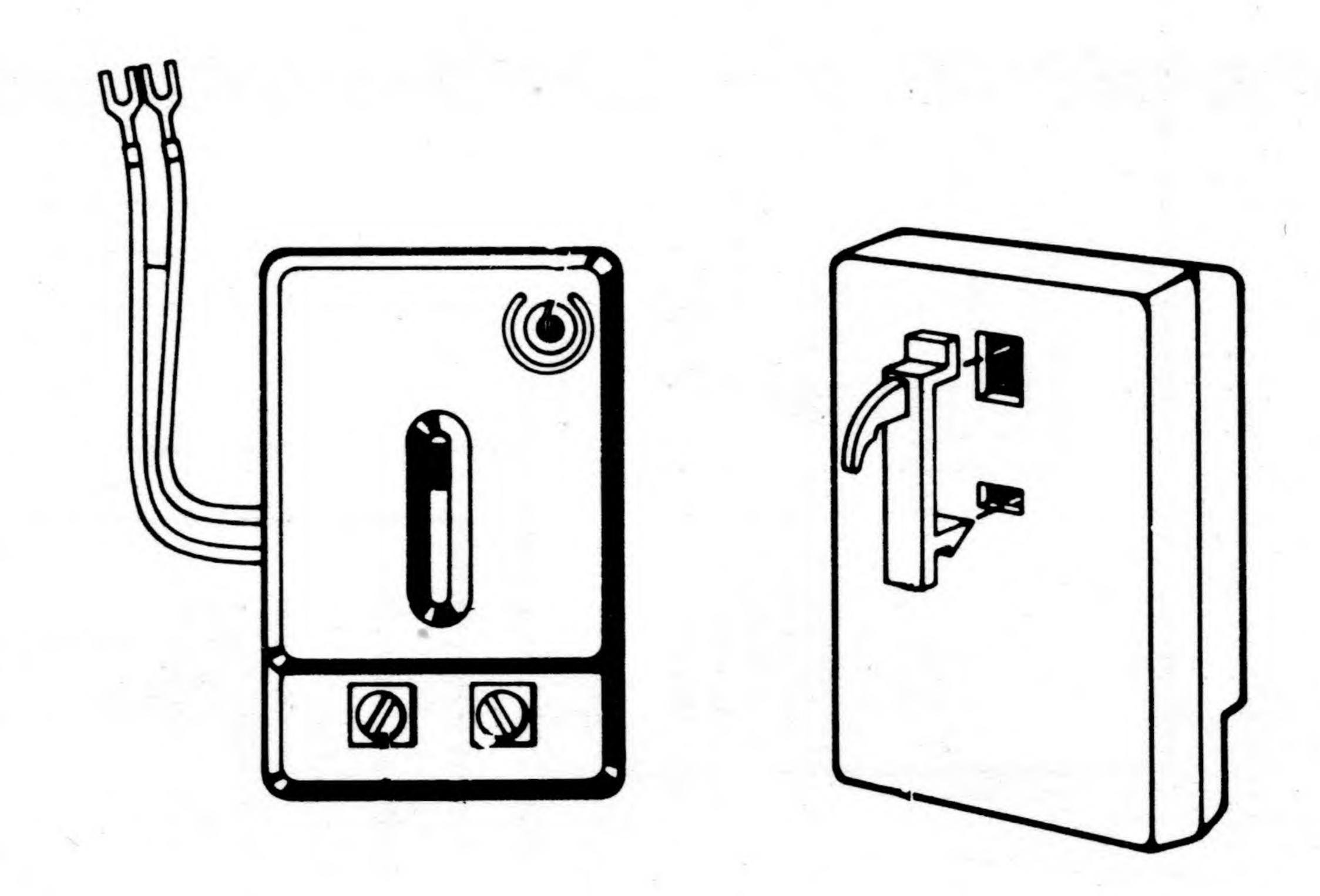
Although not screened - C11 is connected in series with R10.

#### RF MODULATOR REPLACEMENT PARTS LIST

REF.	DESCRIPTION	PART NO.	
	COILS		
L1 L2 L3 L5 L6	12 uhy Coil 12 uhy Coil Osc. Coil 12 uhy Coil Coil	361425-120 361425-120 361425-120 361558-4	
	CAPACITORS Values, tolerances & voltage ratings for capacitors not listed are shown on the schematic, or are 5%, 500V.		
C3 C4 C5 C7 C8 C9 C10 C11	Ceramic, 10 pf.,5%,500V,NPO Ceramic,10 pf.,5%,500V,NPO Trimmer, 2-22 pf.,100V Ceramic,2.2 pf., ± .25 pf.,500V,NPO Ceramic, 10 pf.,5%,500V,NPO Ceramic, 33 pf.,5%,500V,NPO Ceramic, 62 pf.,5%,500V,NPO Ceramic,10 pf.,5%,500V,NPO	250546-1005 250546-1005 250546-2297 250546-1005 250546-3305 250666-6205 250546-1005	
	SWITCHES		
S1	Slide Switch (Channel Select)	160556-2	
	SEMICONDUCTORS		
D1 Q1	Silicon Diode NPN Silicon Transistor	530181-1001 610139-2	
	MISCELLANEOUS		
J4 FB1	3 Pin Molex Connector Ferrite Bead RF Modulator (Top Cover-Copper Bd. Side) RF Modulator (Bottom Cover-	181252-3 364005-1 733293-1	
	Channel Switch Side)  RF Output Jack	733293-4 181095-4	

#### HAND CONTROL REPLACEMENT PARTS LIST

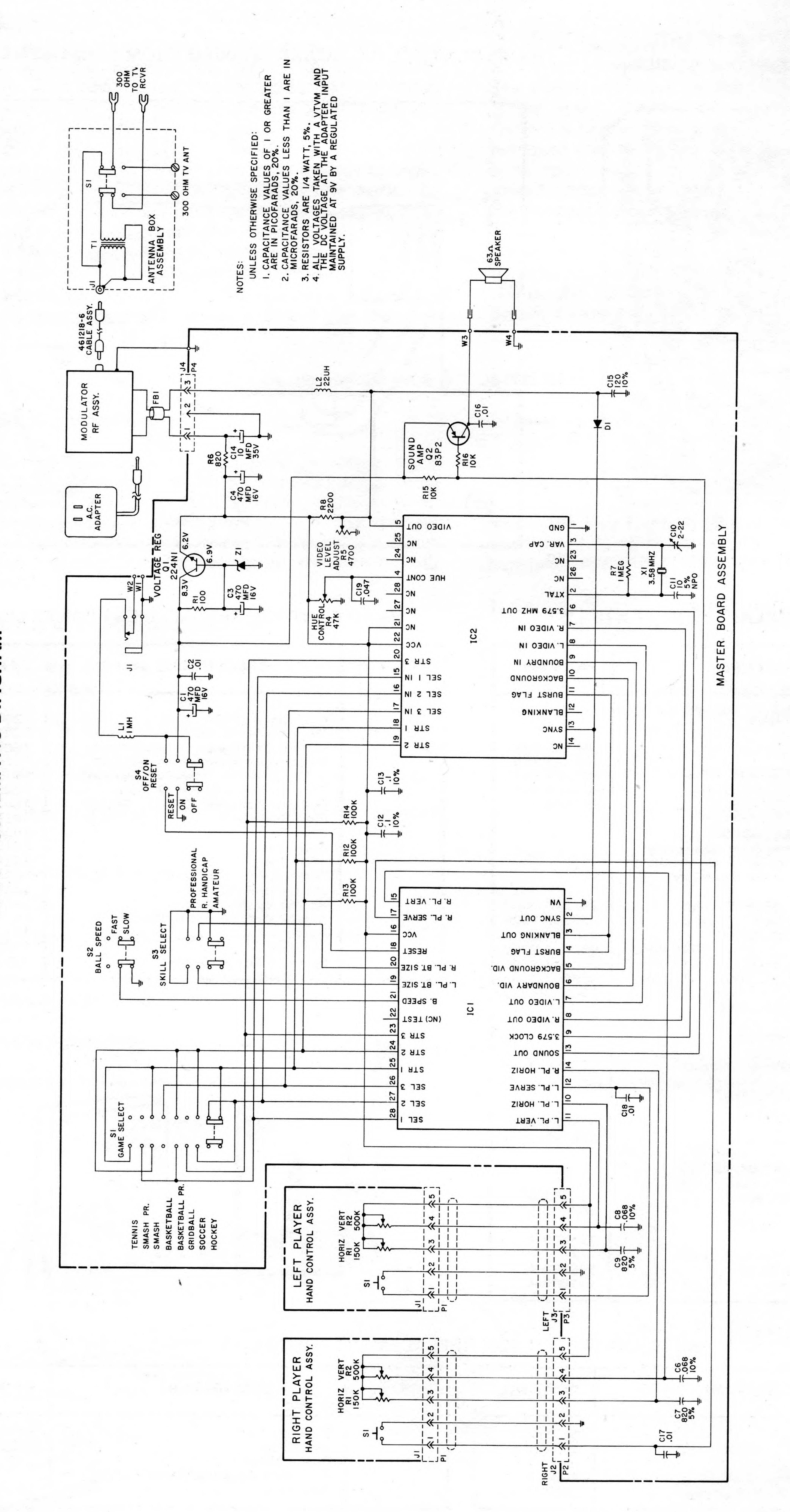
REF.	REF. DESCRIPTION	
R1 R2 S1 J1	Horizontal, 150K, 20% Vertical, 500K, 20% Momentary Switch-Leaf Contact Momentary Switch-Post Contact 5 Pin Connector (Board Mounted) Tension Clip f/Crank (2 used) Pushnut Fastener f/Action Button Case Bottom Case Top Slide, Black Slide, Beige Nylon Crank f/R1 & R2 Joy Stick Retainer Action Button, Red Action Button, Blue Joystick Knob Joystick Spring f/Action Button	220311-16 220311-15 160599-2 160599-1 181253-5 102393-92 103126-12 143968-2 143973-1 143974-3 143975-1 143976-2 143976-1 143977-2 733300-3 733305-1

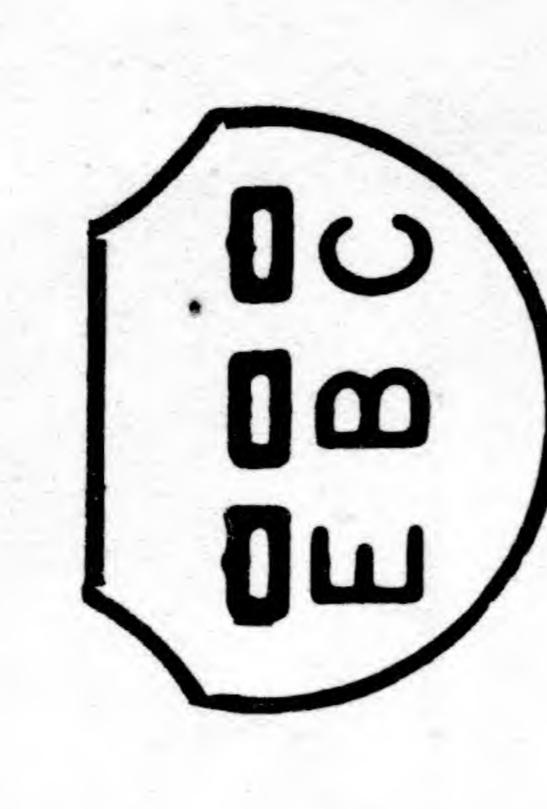


#### ANTENNA SWITCH BOX REPLACEMENT PARTS LIST

REF.	DESCRIPTION	PART NO.
T1 S1 J1	Antenna Balun Slide Switch (Antenna/Game) RF Input Socket Screw Terminal (2 used) Solderless Terminal (2 used)	361108-2 160499-3 180902-4 200495-1 200517-1

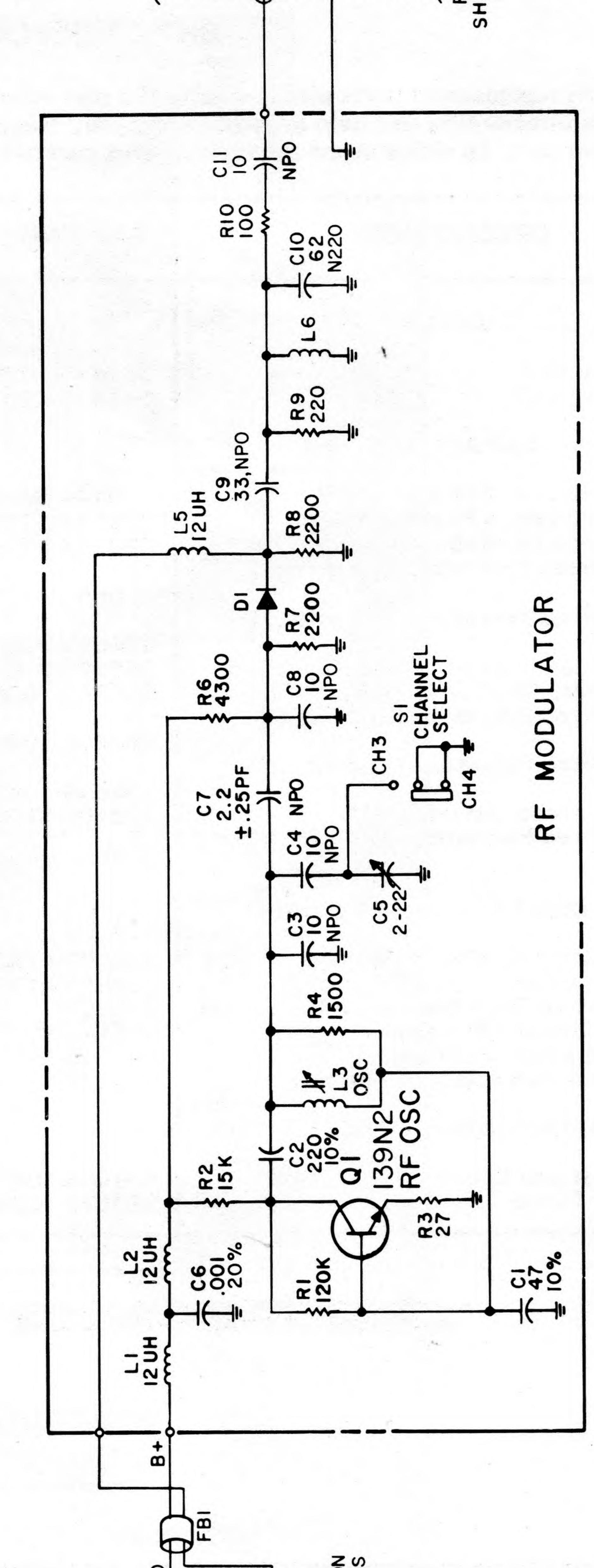
REF.	DESCRIPTION	PART NO.
	Case, Bottom	143674-1
	Case, Top	143676-1
	Plastic Hook Complete Antenna/Game Switch	143719-1
	Assembly	701702-5





		107 107	AGE CHART		
PIN	VOLTAGE	NOTE		VOLTAGE	NOTE
	Ground		15	1.77 4.77	9
	5.77		16	6.27	
	5.37			6.2	2
	5.3%		18	6.2V	8
	1.6V		13	6.2V	6
	5.9V		20	6.2V	10
	6.17		21	6.2V	
8	6.17		22	NC	
	1.38		23	6.17	
0	6.17		24	6.17	
	1.77 - 4.77	2	25	6.17	
2	6.2V	3	26	6.2V	
3	Sound Out	4	27	6.2V	
4	6.17	2	28	6.2V	

		IC2 VOLT	AGE CHART		
PIN	VOLTAGE	NOTE		VOLTAGE	NOTE
	Ground		15	6.17	
2	1.5V		16	6.17	
3	VAR. CAP		11	6.17	
4	0V - 6.2V	12	18	6.17	
2	1.38	13	13	6.17	
9	1.3V		20	6.17	
	6.17		1.7	6.2V	
8	6.17		22	6.2V	
6	5.97		23	NC	
10	1.6V	14	24	S	
	5.3		25	NC	
12	6.3V		26	NC	
13	5.77		27	S	
14	NC		28	NC	



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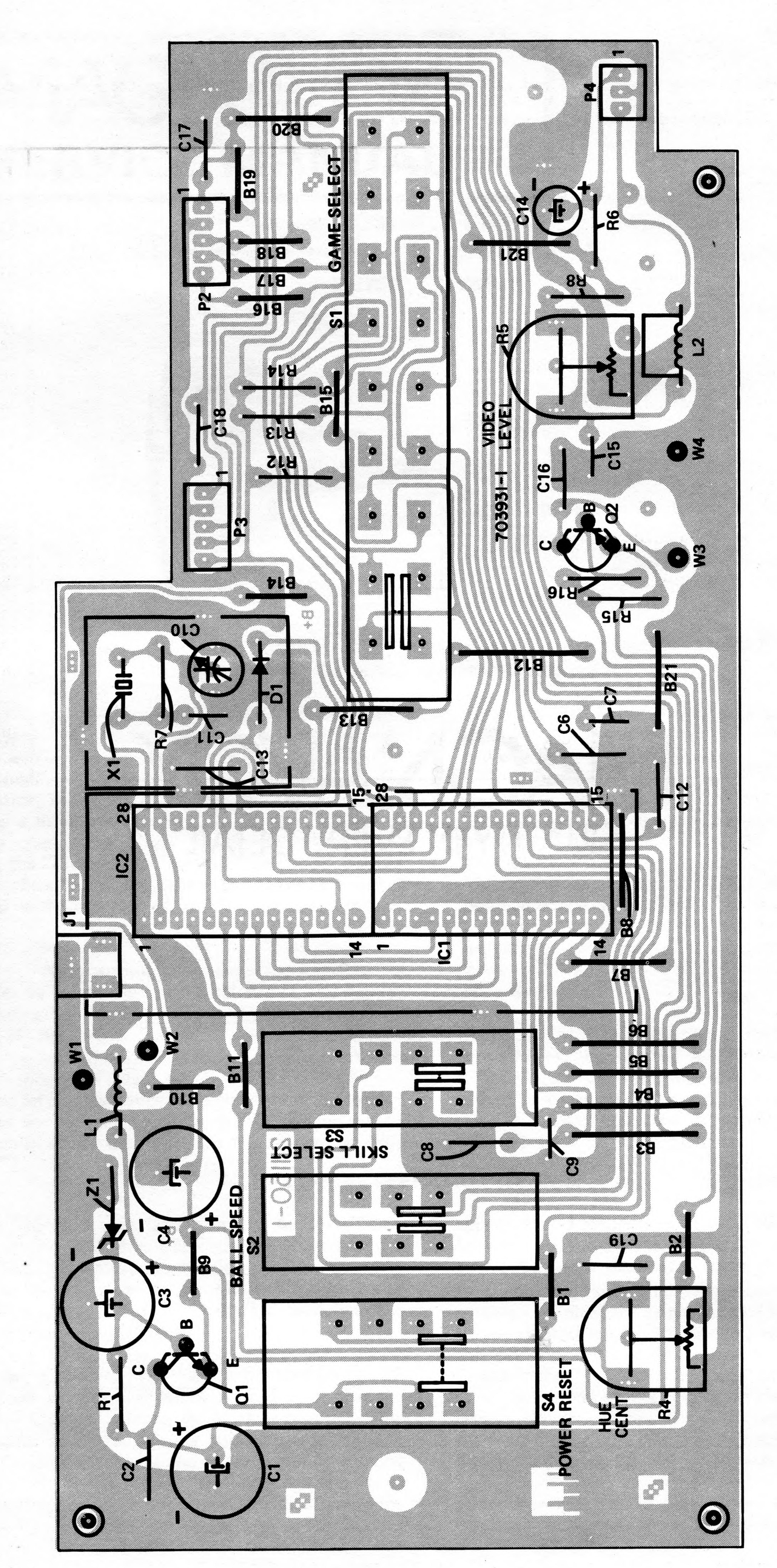
#### BH7511 REPLACEMENT PARTS LIST

Note: When ordering replacement parts please specify the part number as shown in this list including Description, Chassis, and Model Number. Complete information will help expedite the order. Replacement parts may occasionally differ in part number or value from the Factory installed part. In either event the replacement part has been chosen to provide equal or improved performance.

REF.	DESCRIPTION	PART NO.
	COILS	
L1 L2	1 mhy Coil 22 uhy Coil	361444-1029 361425-220
	CAPACITORS	
C1 C3 C4 C6 C8 C10 C11 C12 C13 C14 C19	Electrolytic, 470 mfd., 16V Electrolytic, 470 mfd., 16V Electrolytic, 470 mfd., 16V Metalized Polyester, .068 mfd., 10%, 250V Metalized Polyester, .068 mfd., 10%, 250V Trimmer, 2-22 pf., 100V Ceramic, 10 pf., 5%, 500V, NPO Metalized Polyester, 0.1 mfd., 10%, 100V Metalized Polyester, 0.1 mfd., 10%, 100V Electrolytic, 10 mfd., 35V Metalized Polyester, .047 mfd., 20%, 250V	270144-5215 270144-5215 270144-5215 250655-6839 250655-6839 260220-5 250546-1005 250654-1049 270109-1135
		250055-4750
	CONTROLS & SWITCHES	
R4 R5 S1 S2 S3 S4	Hue Control, 47K, 30% Video Level, 4.7K, 30% 8 Position Slide Switch (Game Select) Slide Switch (Ball Speed) Slide Switch (Skill Select) Slide Switch (On/Off/Reset)	220300-4733 220300-4723 160592-1 160546-3 160546-7 160546-5
	SEMICONDUCTORS	
D1 Z1	Germanium Diode Zener Diode	530065-1002 530073-1039

REF.	DESCRIPTION	PART NO.
Q1	NPN Silicon Transistor	610224-1
Q2	PNP Silicon Transistor	610083-2
IC1	Master Game IC	612146-1
IC2	Color Converter IC	612156-1
	MISCELLANEOUS	
J1	Adapter Jack	181139-4
P2	5 Pin Connector (Board Mounted)	181253-5
P3	5 Pin Connector (Board Mounted)	181253-5
P4	3 Pin Connector (Board Mounted)	181253-3
X1	3.58 MHz Crystal	560404-2
	IC Shield (Top Cover)	733393-1
	Crystal Circuitry Shield (Top Cover)	733392-1
	Shield (Bottom Cover)	733394-1
	RF Modulator Assembly	703938-1
	Antenna Switch Box Assembly	701702-5
	Solderless Terminal (2 used-Speaker	
	Wires)	102487-30
	Speaker Clip (2 used-Speaker Mtg.)	102393-90
	"O" Ring Retainer f/Stud	103082-4
	Speaker, 21/4", 63 ohm	580108-2
	Ground Strap-RF Modulator (2 used)	200401-20
	Game Select Knob	143982-1
	Spring Lock Nut f/Stud	103235-1
	Foot (Black-4 used) Case Bottom	141737-3 143669-7
	Case Docton	143069-7
	Inlay	151603-1
	RF Cable Assembly	461218-6
	Coax Plug (RF Cable)	181235-9
	Cable Assembly-Hand Control	1012000
	(Includes Connectors) 5 Pin Molex Connector (Hand Control	702597-1
	Cable)	181252-5
	Stud, Cover Holding	732953-2
	AC Adaptor	AG9004-BK

### SERVICE NOTES



MAIN P.C. BOARD (VIEWED FROM COMPONENT SIDE)

NOT FR.

B 19 jumper is not connected although screened on the unit.

